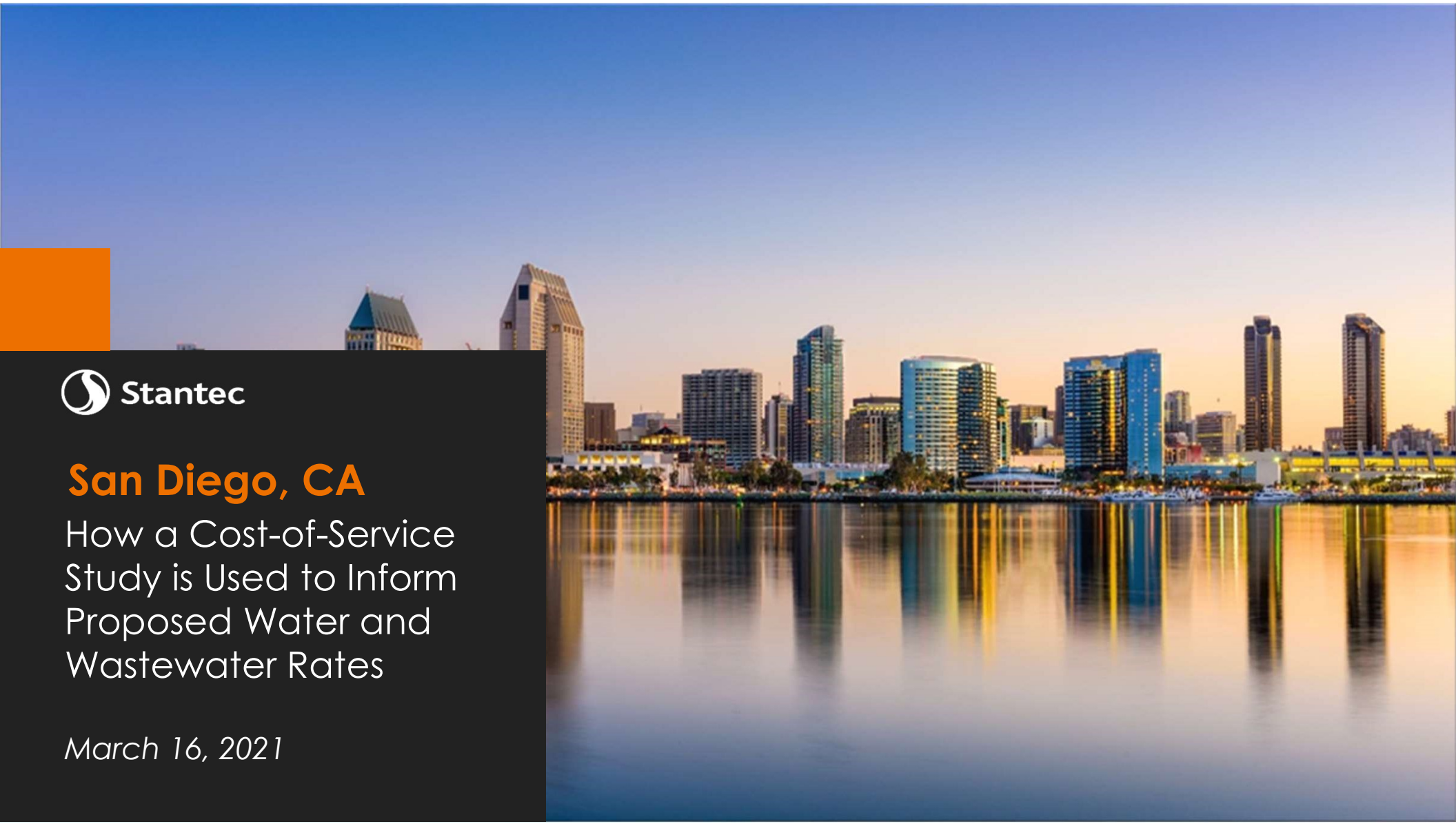


Stantec

San Diego, CA

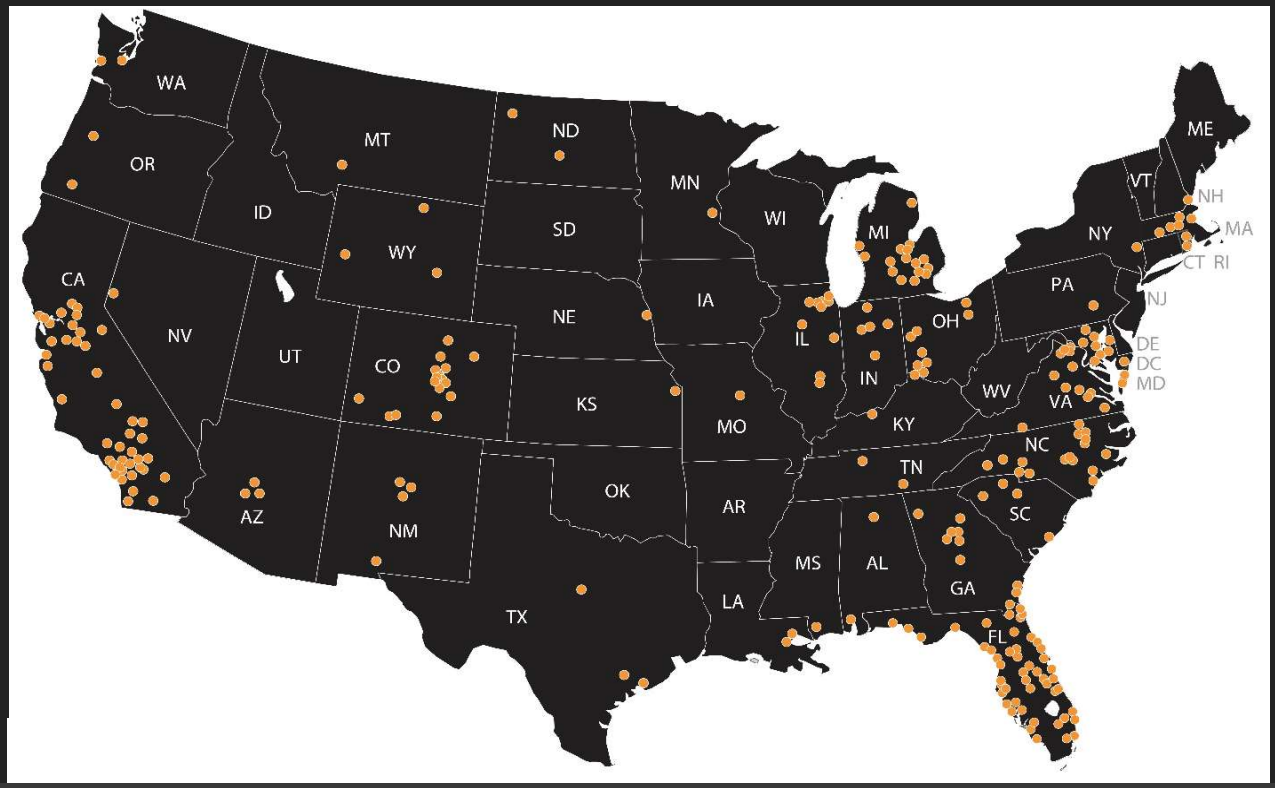
How a Cost-of-Service Study is Used to Inform Proposed Water and Wastewater Rates

March 16, 2021

National and Local Experience of Stantec's Financial Services Team

30+

Communities served by Stantec Financial Services in California



>360

Communities served, accounting for 25+% of the US population!

400+

Combined years of experience

1.5K+

Studies in the last 10 years

35+

Specialists in utility financial management

>550

Utilities in our benchmarking database

$4B+

Debt supported in past five years

Our Role as Independent Reviewers

- Independent review of rate proposals
  - Accuracy
  - Compliance with industry practices
  - Requirements of Proposition 218
- Consider strategies used in other communities
- Analysis in response to IBA, IROC, or Council
- Input and solutions from other rate studies
- Provide understanding of proposed changes
- Serve as resource for questions

The City of SAN DIEGO

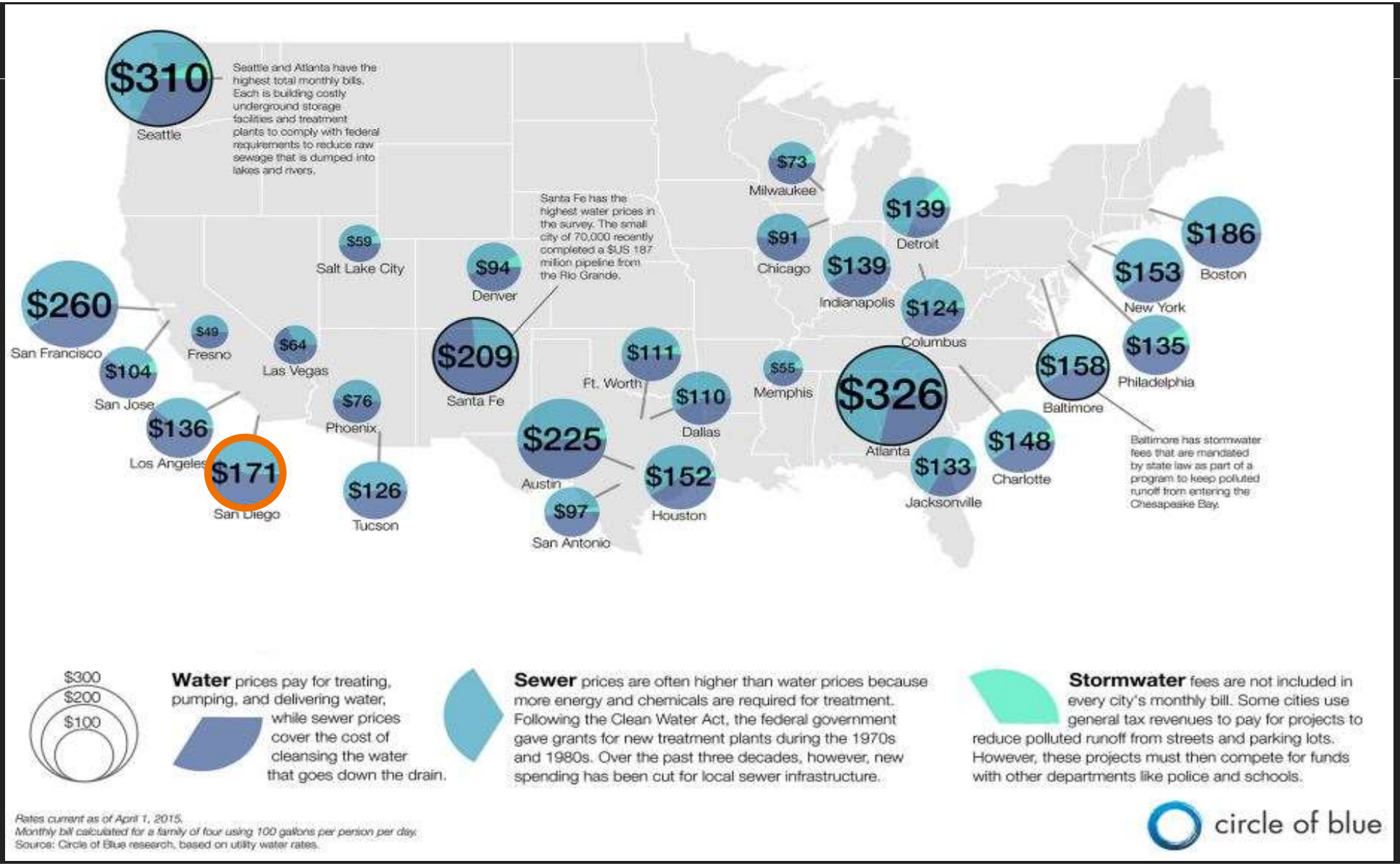
Andrew Burnham
Project Director
20 Years Experience

Benjamin Stewart
Project Manager
10 Years Experience

William Zieburtz & Carol Malesky
Expert Panelists
50+ Years Combined Experience

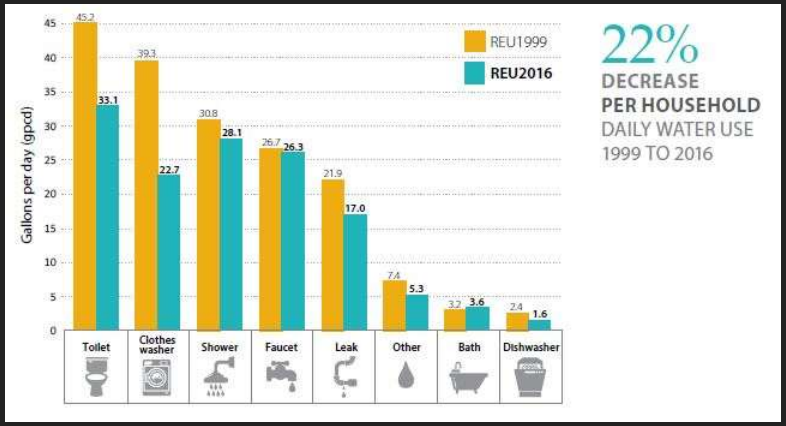
Matthew Freiberg
Lead Consultant
9 Years Experience

Industry Overview

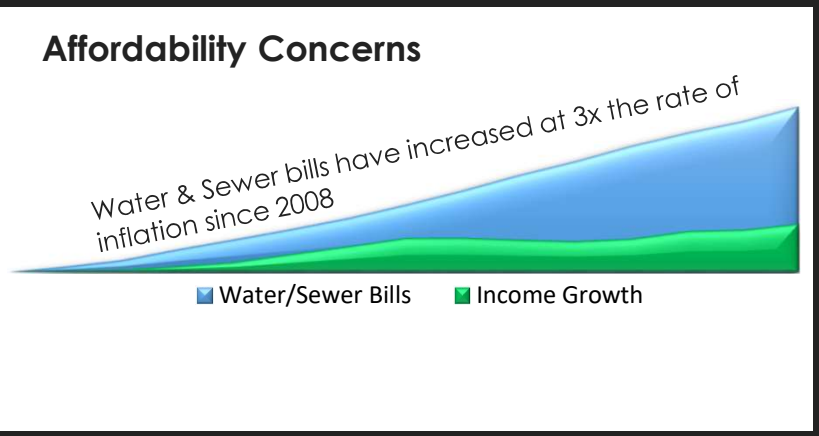

$310
Seattle
Seattle and Atlanta have the highest total monthly bills. Each is building costly underground storage facilities and treatment plants to comply with federal requirements to reduce raw sewage that is dumped into lakes and rivers.
$260
San Francisco
$49
Fresno
$64
Las Vegas
$104
San Jose
$136
Los Angeles
$171
San Diego
$76
Phoenix
$126
Tucson
$59
Salt Lake City
$94
Denver
$209
Santa Fe
Santa Fe has the highest water prices in the survey. The small city of 70,000 recently completed a $US 187 million pipeline from the Rio Grande.
$111
Ft. Worth
$110
Dallas
$225
Austin
$152
Houston
$97
San Antonio
$73
Milwaukee
$91
Chicago
$139
Detroit
$139
Indianapolis
$124
Columbus
$55
Memphis
$326
Atlanta
$133
Jacksonville
$148
Charlotte
$158
Baltimore
$153
New York
$186
Boston
$135
Philadelphia
Baltimore has stormwater fees that are mandated by state law as part of a program to keep polluted runoff from entering the Chesapeake Bay.
$300
$200
$100
Water prices pay for treating, pumping, and delivering water, while sewer prices cover the cost of cleansing the water that goes down the drain.
Sewer prices are often higher than water prices because more energy and chemicals are required for treatment. Following the Clean Water Act, the federal government gave grants for new treatment plants during the 1970s and 1980s. Over the past three decades, however, new spending has been cut for local sewer infrastructure.
Stormwater fees are not included in every city's monthly bill. Some cities use general tax revenues to pay for projects to reduce polluted runoff from streets and parking lots. However, these projects must then compete for funds with other departments like police and schools.
Rates current as of April 1, 2015.
Monthly bill calculated for a family of four using 100 gallons per person per day.
Source: Circle of Blue research, based on utility water rates.
circle of blue

The common drivers of rate increases

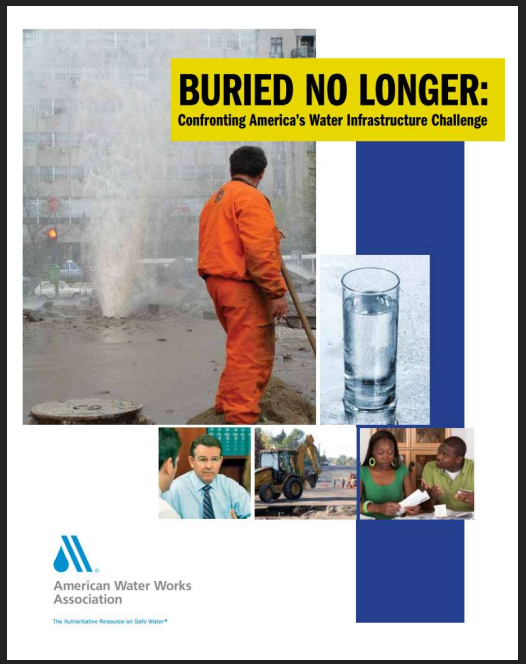
Continued Reductions in Water Use



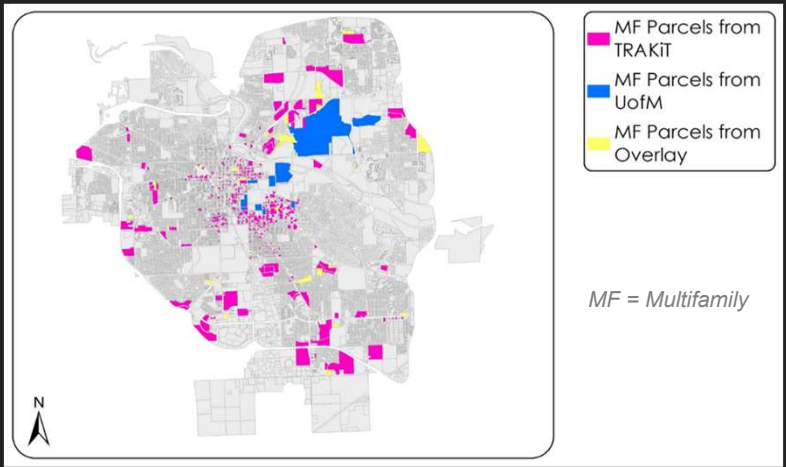
Affordability Concerns

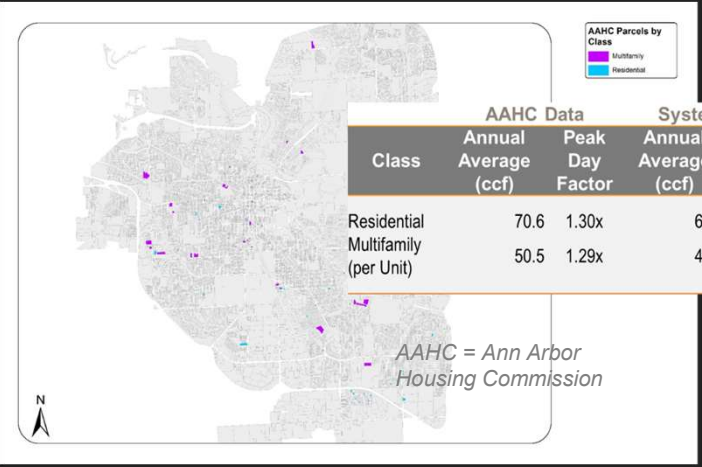


Infrastructure Investment Needs

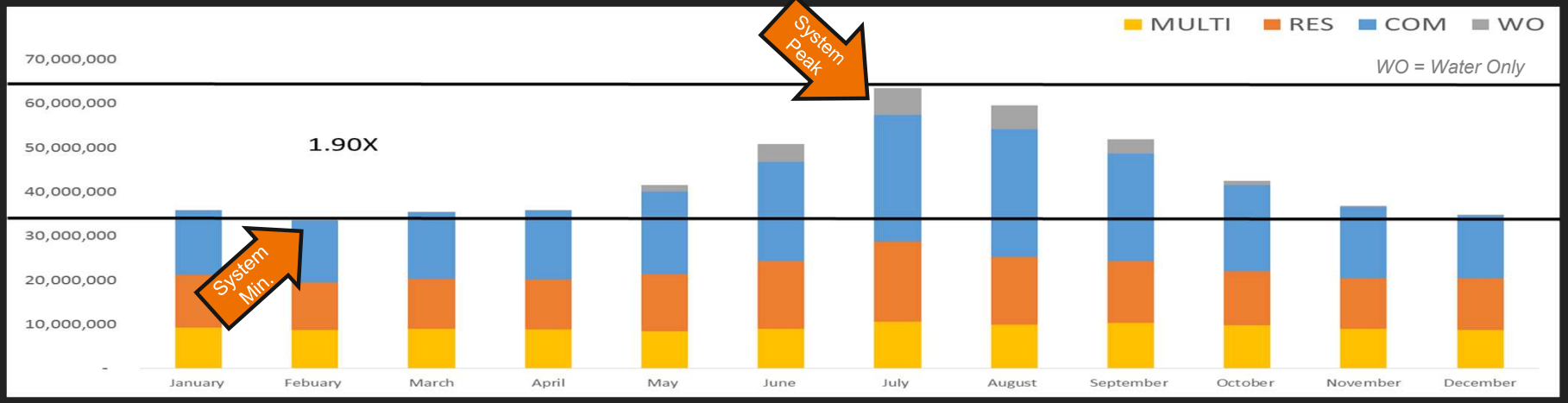


Utilities have better data and aren't afraid to use it!





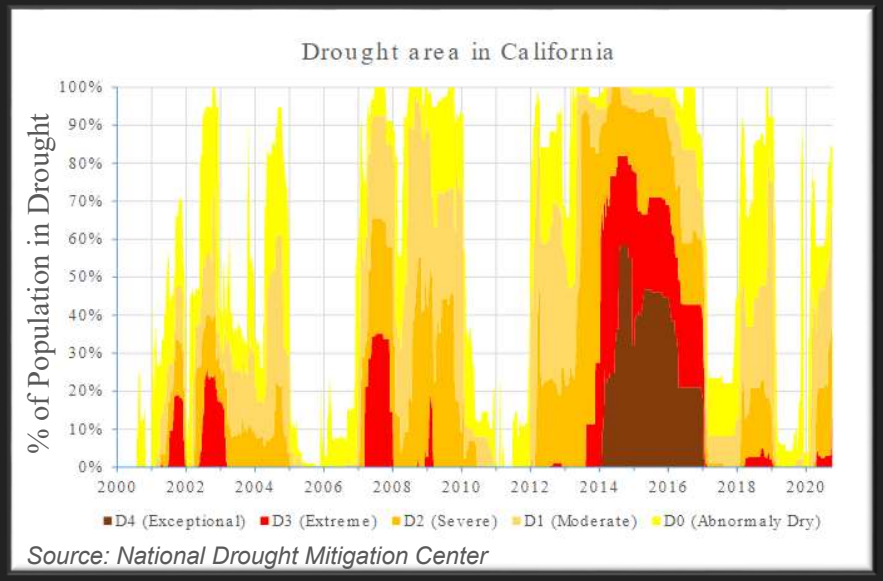
Class	AAHC Data: Annual Average (ccf)	AAHC Data: Peak Day Factor	System-wide: Annual Average (ccf)	System-wide: Peak Day Factor
Residential	70.6	1.30x	61.2	1.52x
Multifamily (per Unit)	50.5	1.29x	48.6	1.23x



Local Issues & Considerations

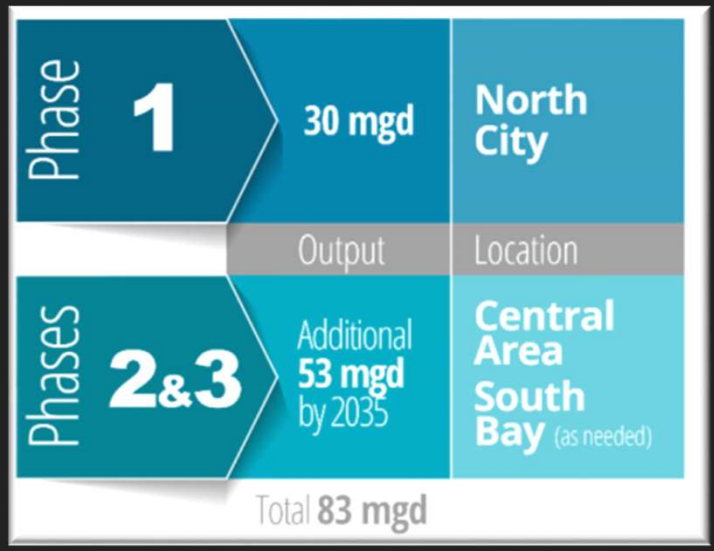
Water and Wastewater in San Diego

Historical droughts yielding lasting changes in demands



Source: National Drought Mitigation Center

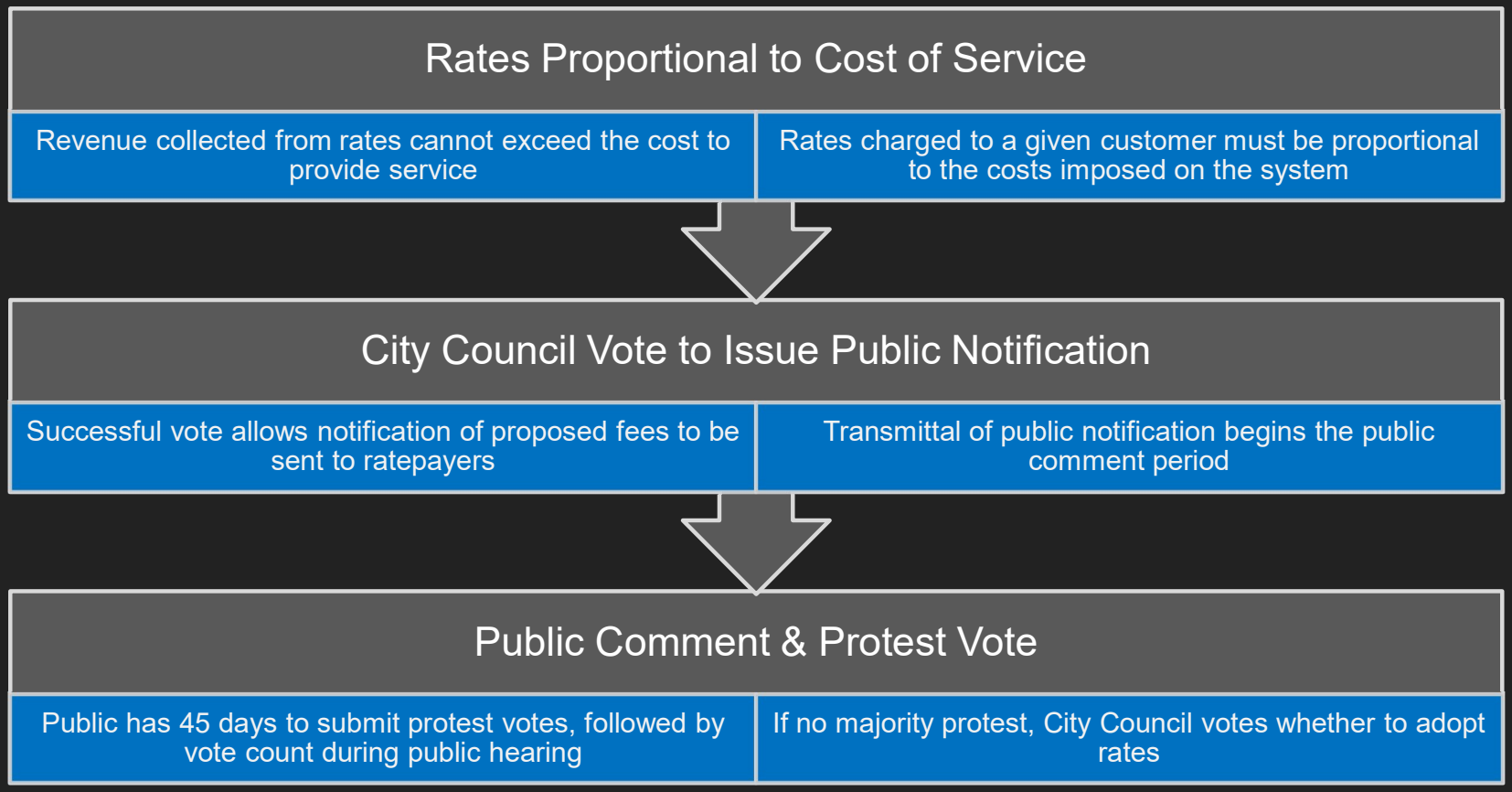
Pure Water Program creates new water supply



$17.7 million refund from County Water Authority

Changes to Industrial Wastewater Control Program

Prop 218 Overview



San Diego Rates & Local Comparisons

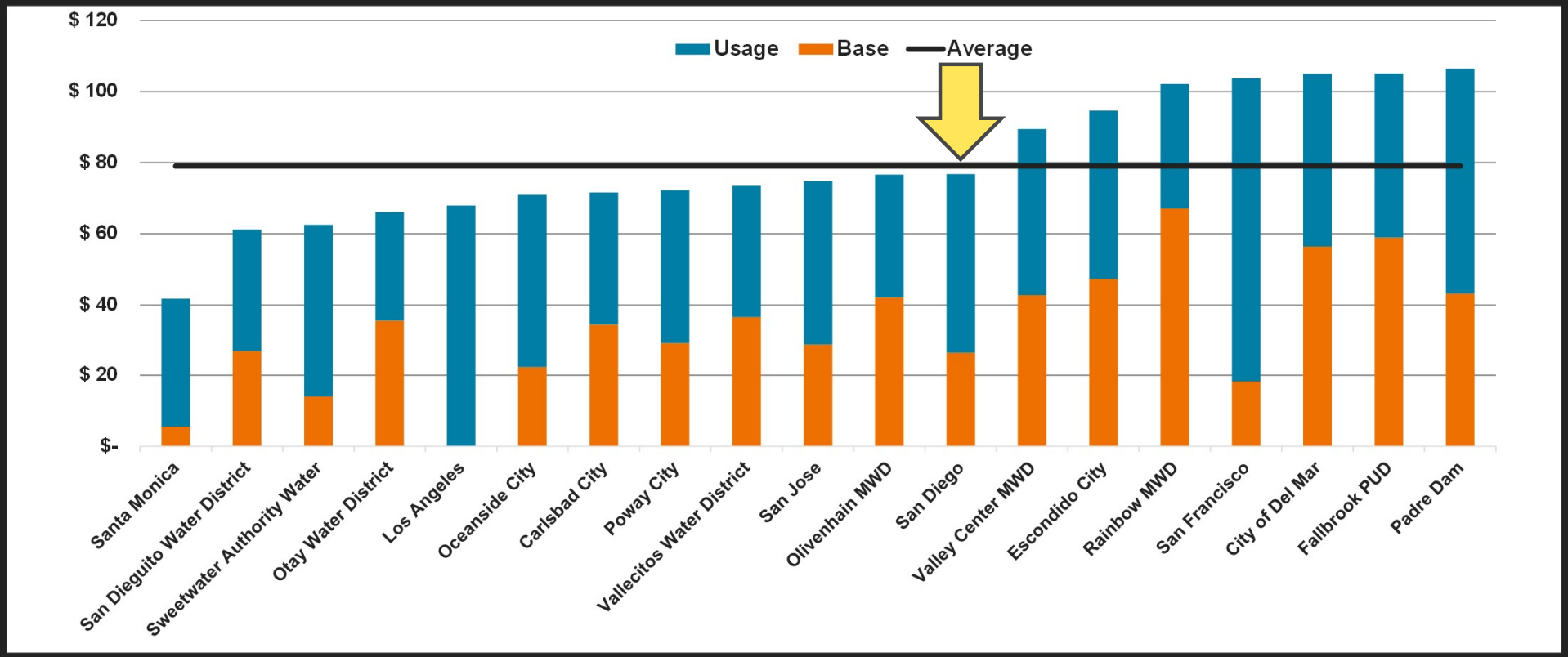
San Diego Water Rates

Customer Classes	Tier Widths	$ Rate / HCF
Single Family Residential		
Tier 1	0-4 HCF	$5.257
Tier 2	5-12 HCF	$5.888
Tier 3	13-18 HCF	$8.412
Tier 4	19 + HCF	$11.828
Multi-Family Residential	All Cons.	$6.362
Commercial / Industrial	“	$6.208
Irrigation	“	$7.053
Temp Construction	“	$7.173

Base Fees (Monthly)	
5/8"	$26.30
3/4"	$26.30
1"	$34.83
1.5"	$54.34
2"	$78.72
3"	$136.01
4"	$217.69
6"	$420.05
8"	$663.85
10"	$949.10
12"	$1,760.96
16"	$3,031.65

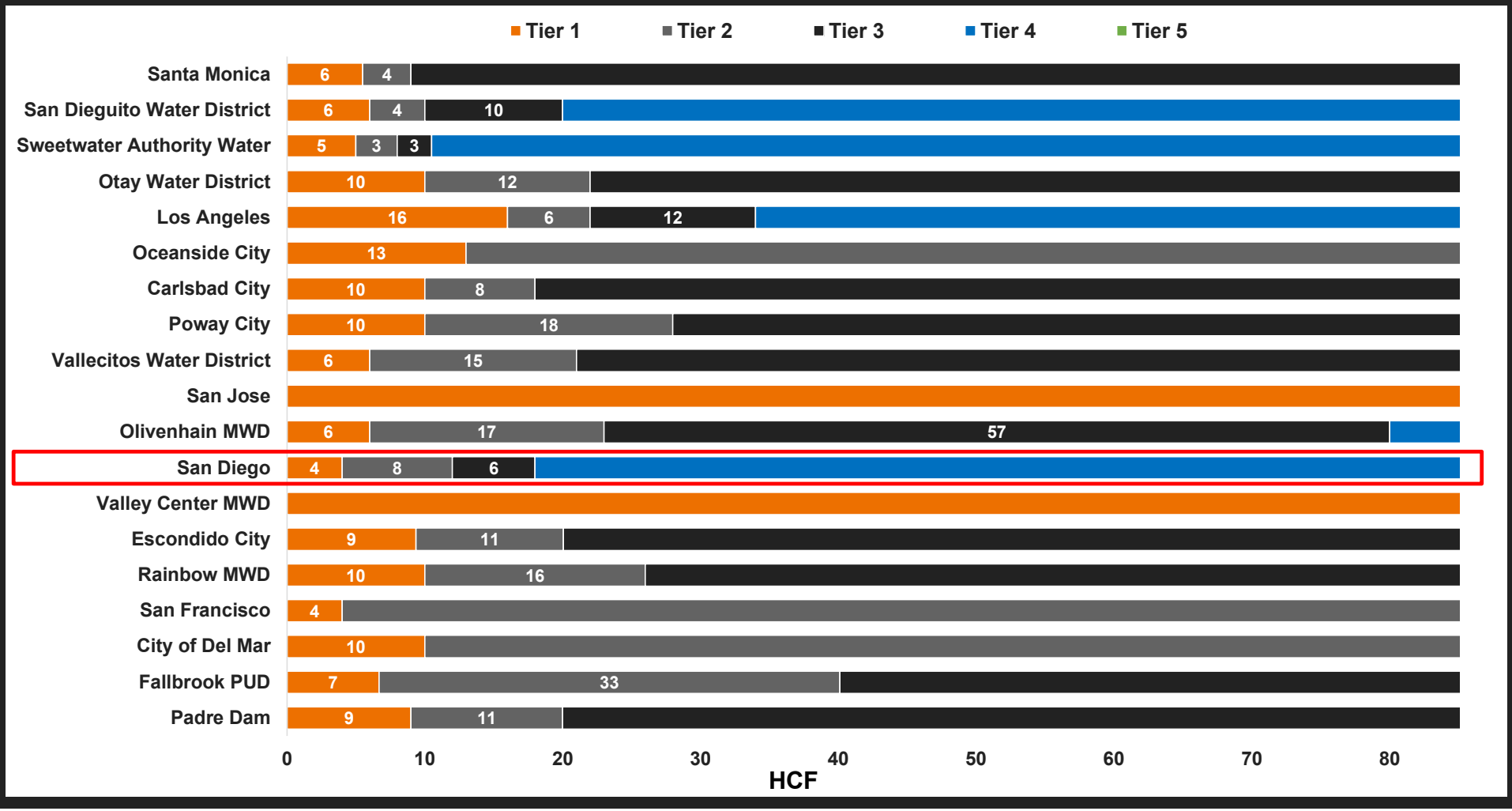
Local Residential Water Rate Comparison

Residential Water Bill Comparison (9 HCF/mo, 3/4” meter)



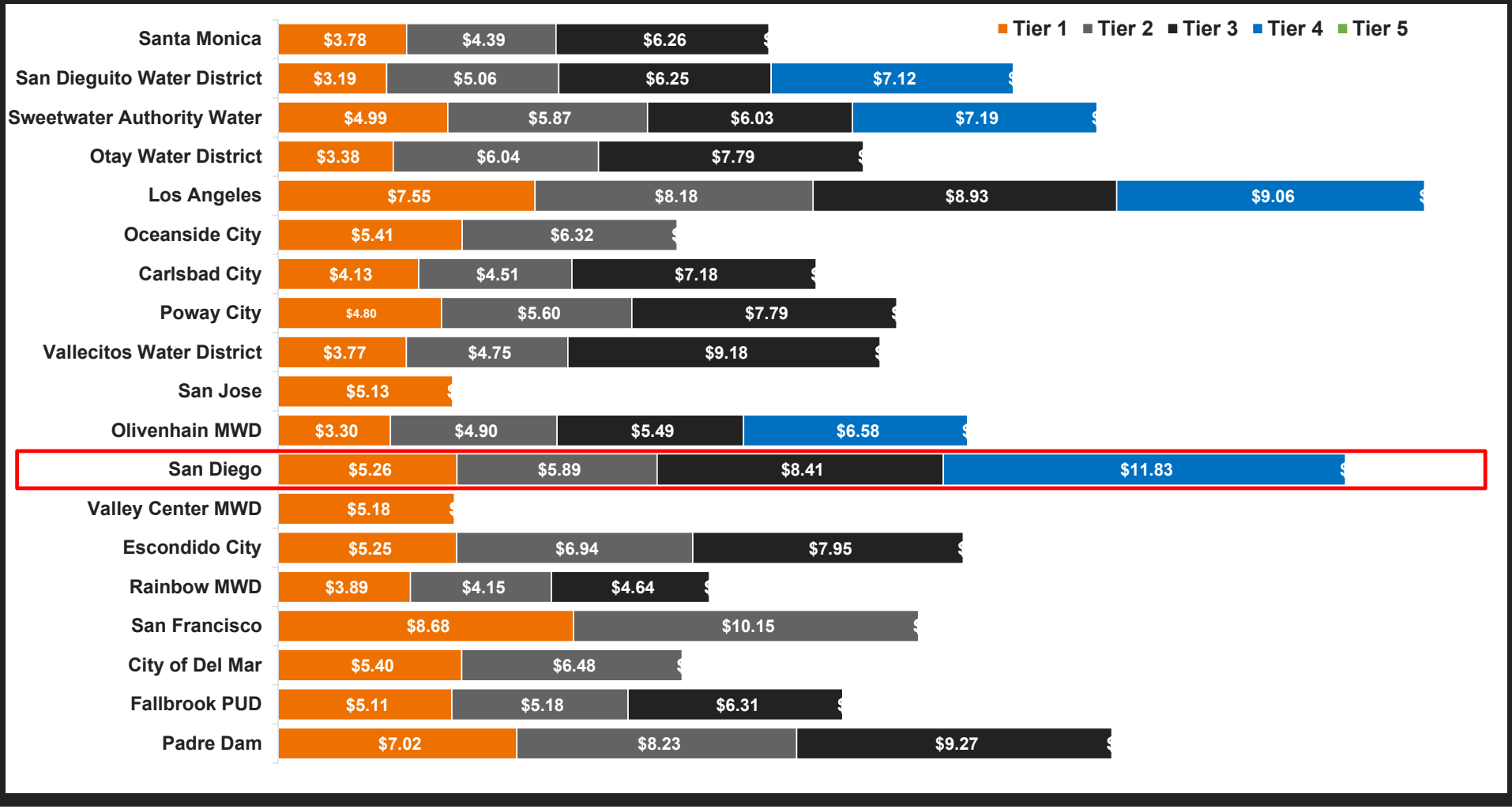
Local Residential Water Usage Rate Structures

Tier Size Comparison - Residential



Local Residential Water Usage Pricing

Current Water Tier Pricing Comparison - Residential



San Diego Wastewater Rates

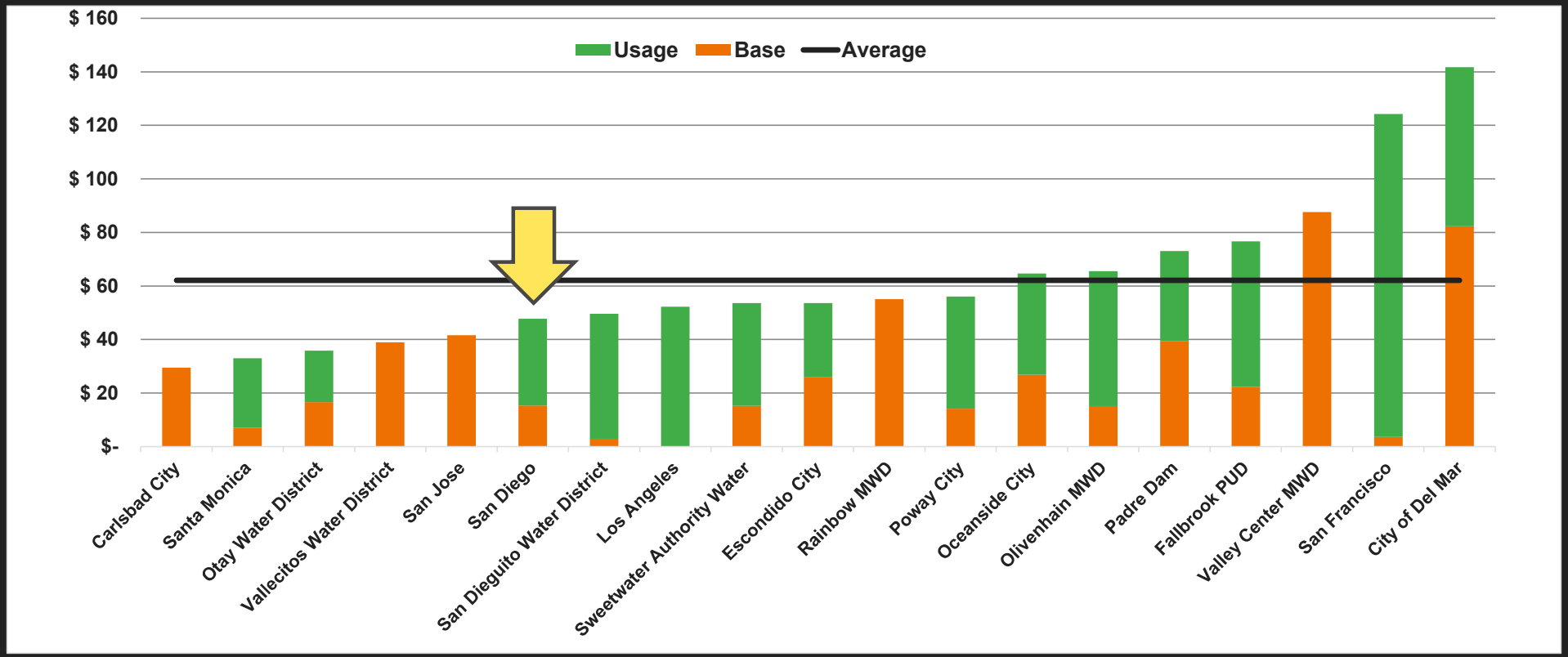
Single Family Residential	Rate
Base Sewer Fee	$30.66 / 2-months
Sewer Commodity Rate	$3.5983 / HCF

Multi Family Residential	Rate
Base Sewer Fee	$15.33 / month
Sewer Commodity Rate	$5.0276 / HCF

Commercial/Industrial	Rate
Base Sewer Fee	$15.33 / month
Sewer Commodity Rate	$3.7672 / HCF
TSS	$0.5517 / pound
COD	$0.2242 / pound

Local Residential Wastewater Rate Comparison

Residential Wastewater Bill Comparison (9 HCF/mo, 3/4” meter)

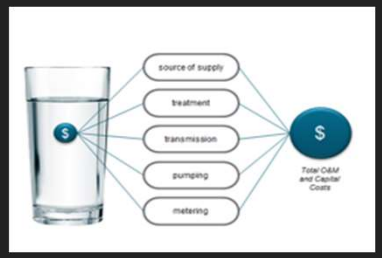


Water and Wastewater Rates are Difficult to Compare

- Rate structure & customer classes
- Treatment processes & technology
- Age of infrastructure
- Source(s) of supply
- Customer characteristics
- Topography
- Service area size & density
- Regulatory drivers
- Financial position
- Timing of rate adjustments
- Use of alternative funding sources
- Etc.

Approach to Evaluating Rates

May not need to perform all steps each year



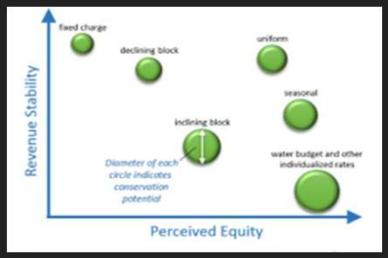
Revenue Requirements

- Operating Costs
- Capital Costs
- Financial Policies
  - Debt Coverage
  - Reserves

Annually

Cost Allocation

- Evaluate Available Data
- Establish Classes
- Identify Methodology
- Compare Results to Current Revenue



Rate Design

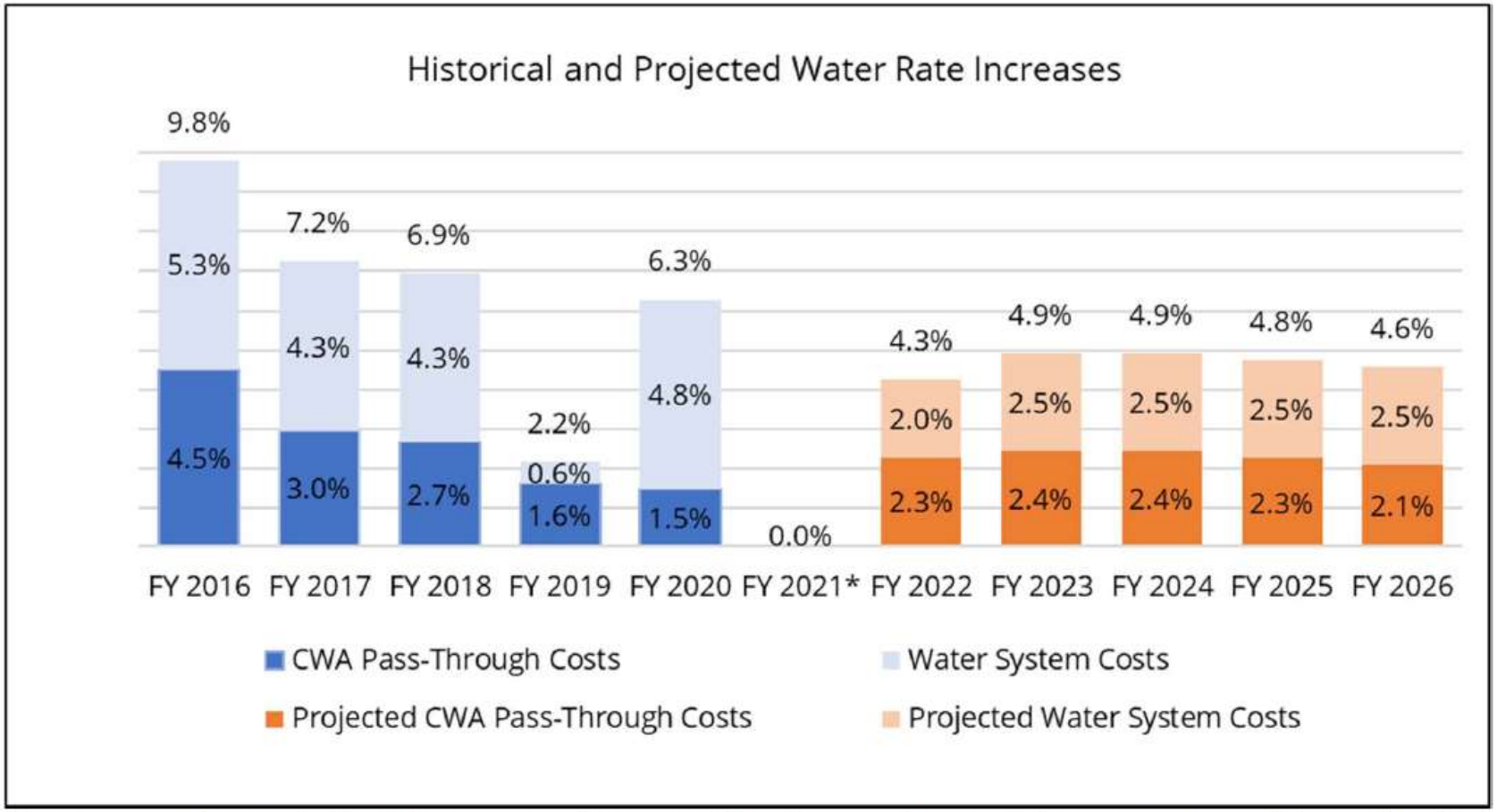
- Evaluate Objectives
- Identify Structures
- Set Parameters
- Customer Impacts

Every 3 to 5 Years

PUD Five-Year Water Outlook forms Revenue Requirements

Table 1.1 - Water System Fiscal Year 2022-2026 Financial Outlook Summary of Operating & Maintenance Key Financial Data ($ in Millions)					
	Fiscal Year 2022	Fiscal Year 2023	Fiscal Year 2024	Fiscal Year 2025	Fiscal Year 2026
Water Sales	$594.8	$623.2	$652.3	$689.0	$725.6
Capacity Charges	$14.4	$14.4	$14.4	$14.4	$14.4
Revenue from Use of Property	$6.1	$6.1	$6.1	$6.1	$6.1
Other Revenue	$24.1	$20.5	$21.1	$22.8	$23.7
TOTAL SYSTEM REVENUES	**$639.4**	**$664.2**	**$693.9**	**$732.3**	**$769.9**
Salaries & Wages	$45.9	$45.9	$45.9	$45.9	$45.9
Fringe Benefits	$35.0	$35.0	$35.0	$35.0	$35.0
Water Purchases	$271.6	$285.5	$300.1	$292.9	$284.5
Other Non-Personnel Expenditures	$122.8	$125.5	$127.9	$130.3	$132.8
BASELINE OPERATING EXPENDITURES	**$475.3**	**$491.9**	**$508.8**	**$504.1**	**$498.2**
CRITICAL OPERATING EXPENDITURES	**$13.7**	**$17.9**	**$17.5**	**$23.7**	**$37.7**
Contribution to Capital Improvement Program	$105.8	$29.1	$23.0	$20.5	$15.8
Debt Service	$112.3	$112.6	$118.5	$145.3	$149.6
(Use of) / Contributions to Reserves	($14.0)	($13.0)	($8.8)	($8.3)	$8.2
NON-OPERATING EXPENDITURES	**$204.0**	**$128.7**	**$132.7**	**$157.5**	**$173.6**
TOTAL EXPENDITURES	**$693.0**	**$638.6**	**$659.0**	**$685.4**	**$709.5**
Impact to Unallocated Fund Balance	**($53.6)**	**$25.6**	**$34.9**	**$46.9**	**$60.4**
Debt Service Coverage Ratio	**1.48 x**	**1.51 x**	**1.51 x**	**1.48 x**	**1.54 x**

PUD Five-Year Water Outlook Forecasts Rate Increases

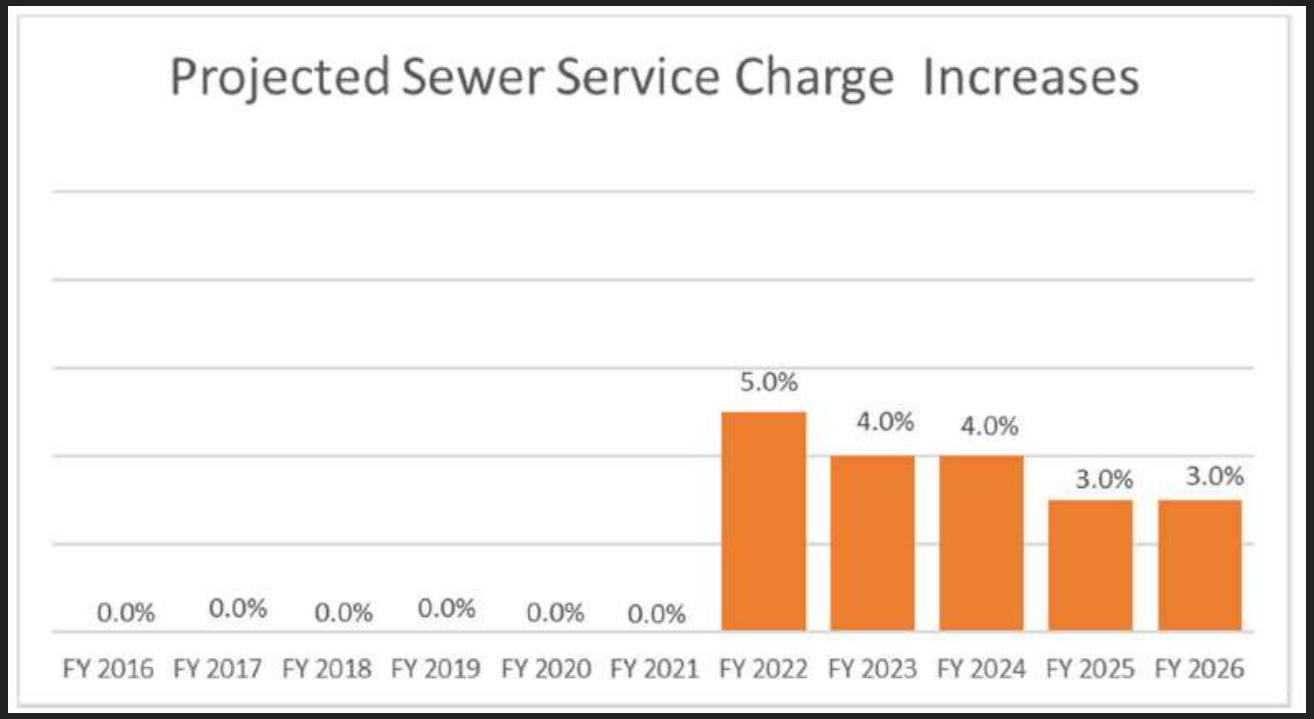


*No water rate increase is shown for FY 2021. While rates will not increase in FY 2021, the Department anticipates absorbing an effective 2.5% increase in CWA's water rates.

PUD Five-Year Wastewater Outlook forms Revenue Requirements

Table 1.3 - Wastewater System Fiscal Year 2022-2026 Financial Outlook Summary of Operating & Maintenance Key Financial Data ($ in Millions)	Fiscal Year 2022	Fiscal Year 2023	Fiscal Year 2024	Fiscal Year 2025	Fiscal Year 2026
Sewer Service Charges	$302.9	$315.8	$329.2	$339.9	$351.0
Capacity Charges	$17.5	$17.5	$17.5	$17.5	$17.5
Grants	$0.3	$0.0	$0.0	$0.0	$0.0
Other Revenue	$100.1	$99.9	$99.8	$105.1	$105.3
TOTAL SYSTEM REVENUES	**$420.8**	**$433.2**	**$446.5**	**$462.5**	**$473.8**
Salaries & Wages	$58.1	$58.1	$58.1	$58.1	$58.1
Fringe Benefits	$41.7	$41.7	$41.7	$41.7	$41.7
Other Non-Personnel Expenditures	$162.7	$166.0	$169.1	$172.3	$175.6
BASELINE EXPENDITURES	**$262.5**	**$265.8**	**$268.9**	**$272.1**	**$275.4**
CRITICAL OPERATING EXPENDITURES	**$12.2**	**$14.2**	**$13.9**	**$15.0**	**$23.8**
Contributions to Capital Improvement Program	$2.4	$77.1	$55.1	$75.6	$65.8
Debt Service	$109.3	$118.1	$103.4	$105.5	$111.0
(Use of) / Contributions to Reserves	($15.6)	($21.5)	$5.5	$8.3	$2.3
NON-OPERATING EXPENDITURES	**$96.2**	**$173.8**	**$164.0**	**$189.4**	**$179.1**
TOTAL EXPENDITURES	**$370.8**	**$453.8**	**$446.8**	**$476.5**	**$478.2**
Impact to Unallocated Fund Balance	**$49.9**	**($20.6)**	**($0.3)**	**($14.0)**	**($4.4)**
Debt Service Coverage Ratio	**1.48 x**	**1.48 x**	**1.53 x**	**1.59 x**	**1.55 x**

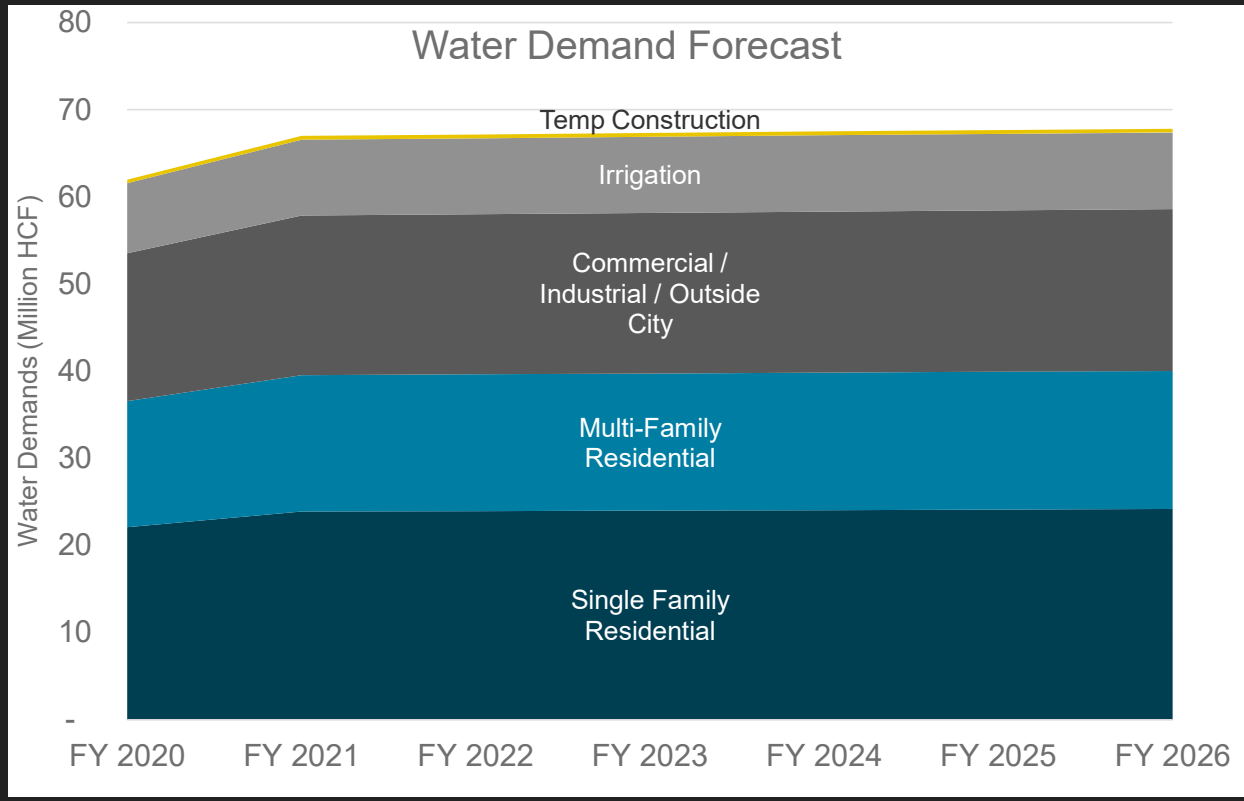
PUD Five-Year Wastewater Outlook Forecasts Rate Increases



Drivers of Revenue Requirements

Assumptions & Forecasts:

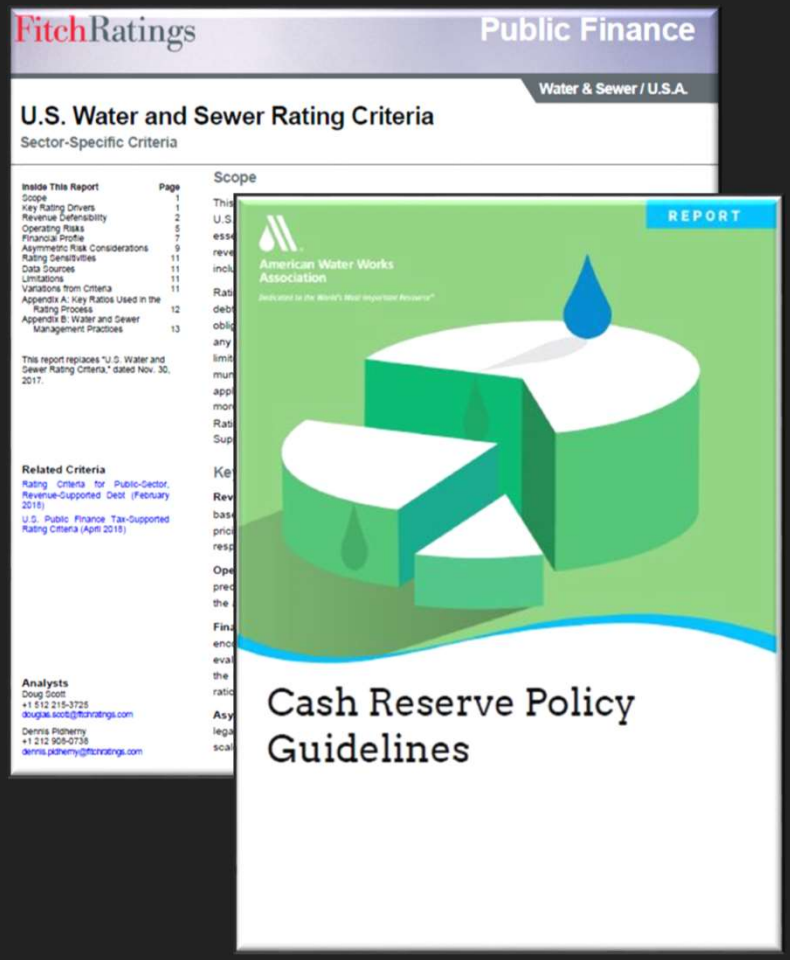
- Customer demands
- Account growth
- Inflation
- Purchased water costs
- Capital costs and project schedules
- Borrowing terms



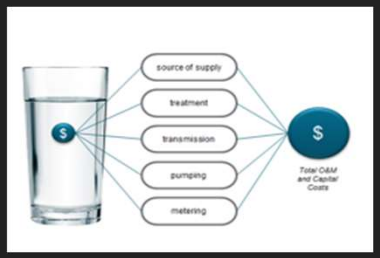
Drivers of Revenue Requirements

Policy Decisions:

- Reserve requirements
  - Operating Reserve
  - Capital Reserve
  - Rate Stabilization Reserve
- Key performance indicators and targets
  - Debt service coverage
  - Days cash on hand
- Capital funding sources
  - Cash
  - Bonds/Commercial Paper
  - SRF Loans
  - WIFIA Loan



May not need to perform all steps each year



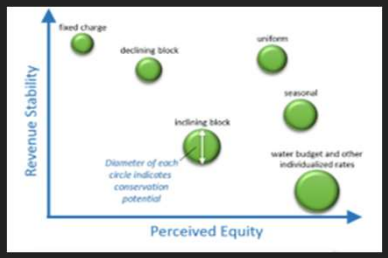
Revenue Requirements

- Operating Costs
- Capital Costs
- Financial Policies
  - Debt Coverage
  - Reserves

Annually

Cost Allocation

- Evaluate Available Data
- Establish Classes
- Identify Methodology
- Compare Results to Current Revenue



Rate Design

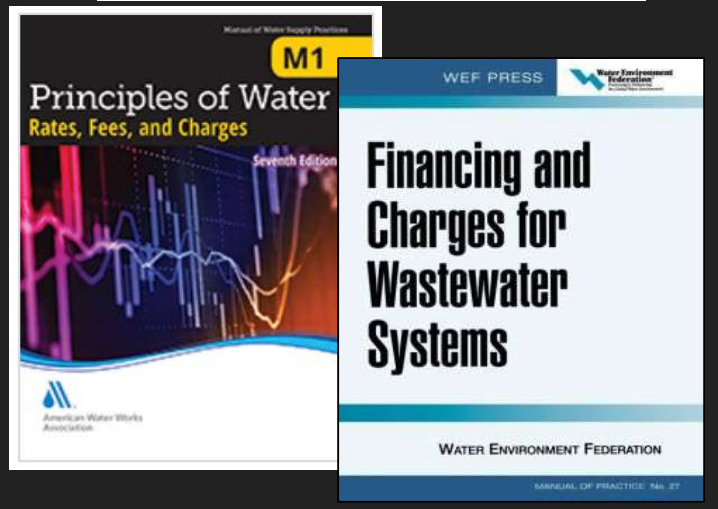
- Evaluate Objectives
- Identify Structures
- Set Parameters
- Customer Impacts

Every 3 to 5 Years

Objectives of Cost of Service Analysis

- Utilities are made up of different functions that drive costs
- Different customer types use the system functions differently and, as a result, the costs to serve these customer types can and do vary
- Studies use estimates for customer demands and wastewater strengths based on available data that can be updated in the future as information becomes available

"By the book" approaches

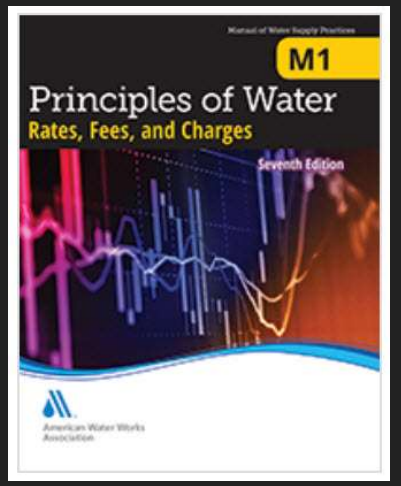


Goal: Determine the **cost to serve** each class and collect revenue from each class consistent with the cost of providing service as required by Prop 218.

Utilize available industry resources (as guidance)

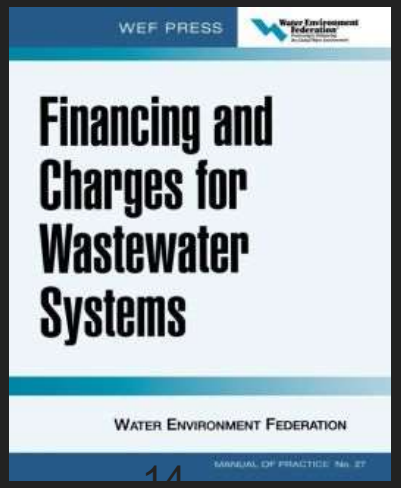
AWWA Manual M-1

- Costs allocated to functions and then to users in proportion to contributions to system components
- Provides detailed guidance for cost-of-service based water rates

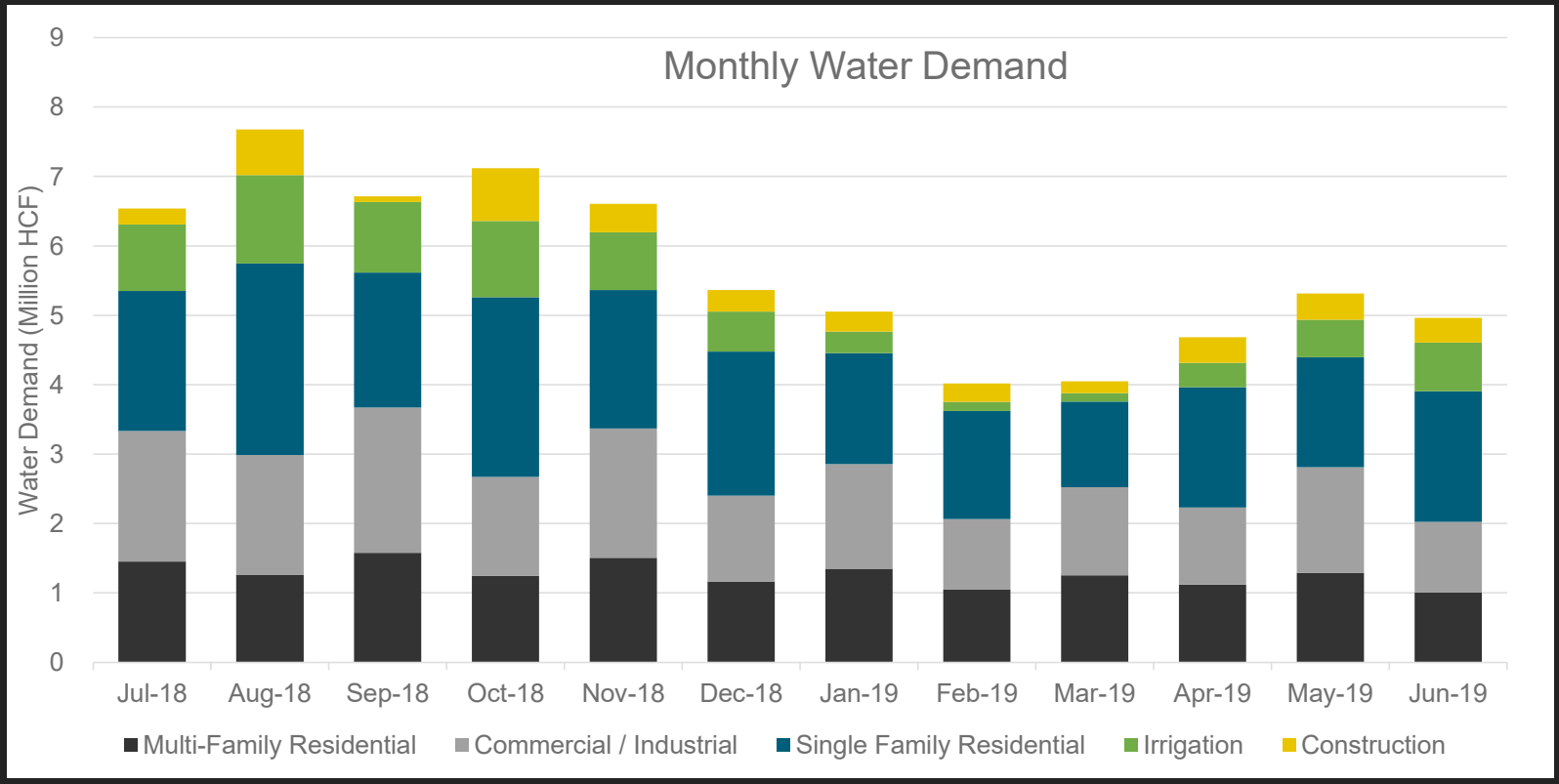


WEF MOP #27

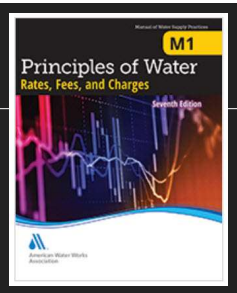
- Similar to Manual M-1 in level of detail and cost allocation process
- Relies upon strength & flow for wastewater rates
- Used by many communities



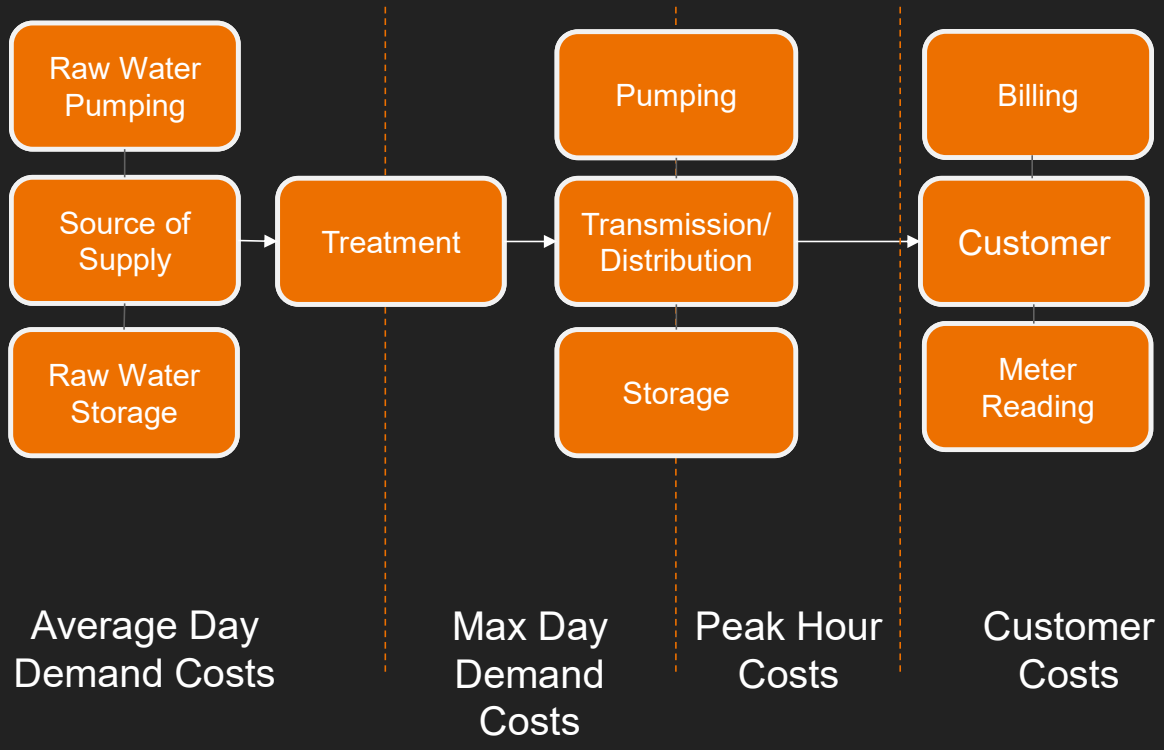
San Diego's Monthly Usage by Class



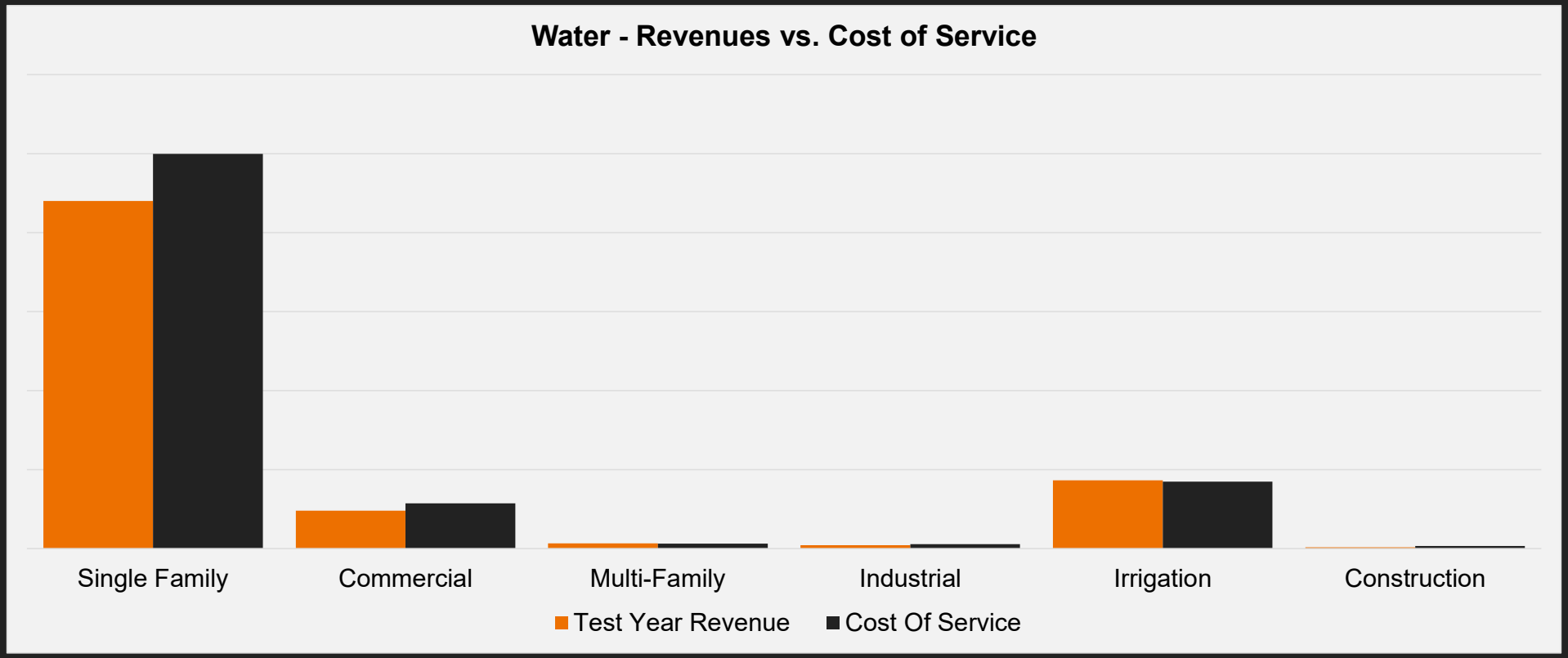
Customers use system differently, impacting the cost to provide service

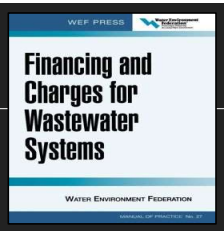


Functionalizing System Costs

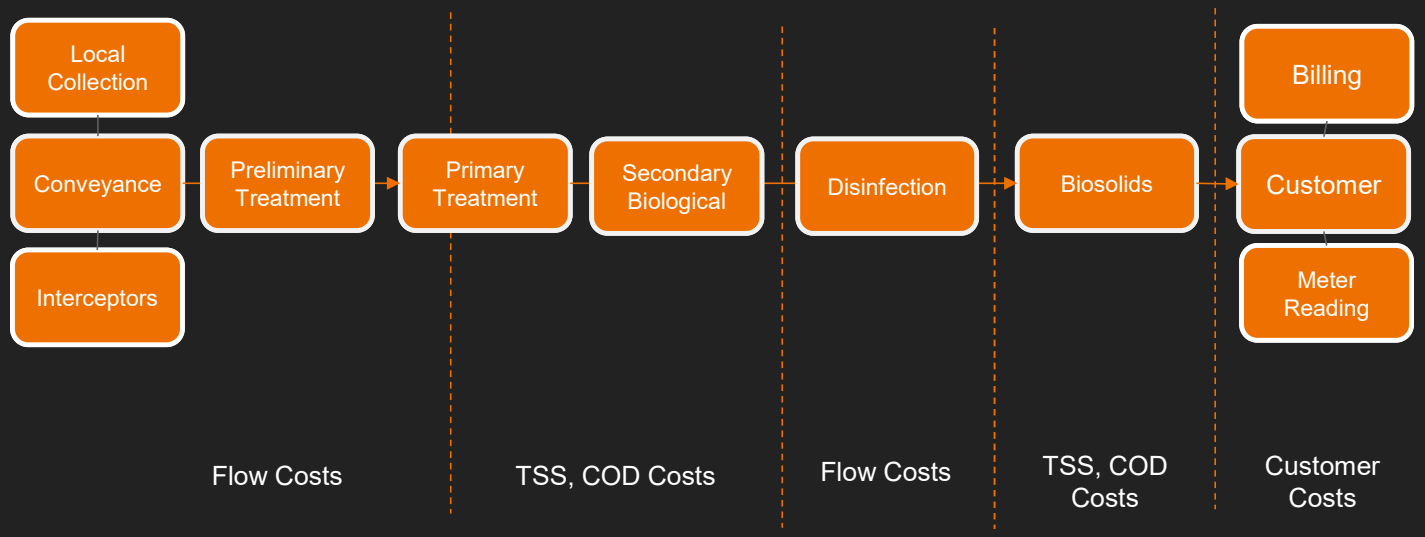


Example: Test Year Revenue vs Cost of Service



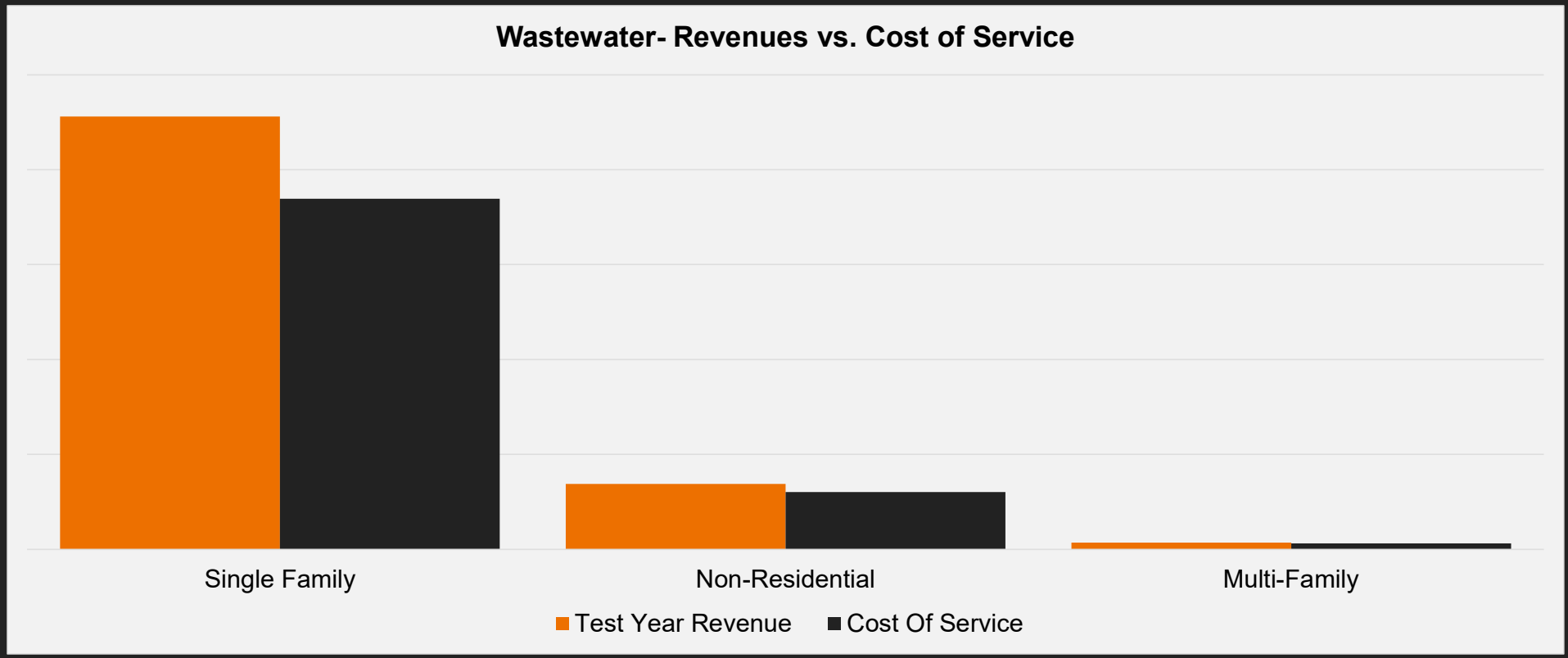


Sewer costs to functions by another book

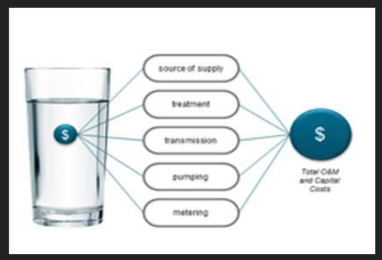


TSS – Total Suspended Solids
COD – Chemical Oxygen Demand

Example: Test Year Revenue vs Cost of Service Analysis



May not need to perform all steps each year



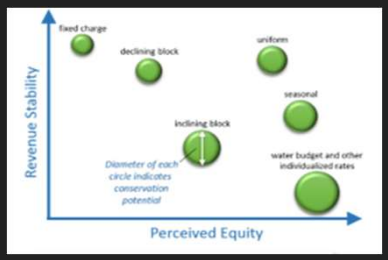
Revenue Requirements

- Operating Costs
- Capital Costs
- Financial Policies
  - Debt Coverage
  - Reserves

Annually

Cost Allocation

- Evaluate Available Data
- Establish Classes
- Identify Methodology
- Compare Results to Current Revenue

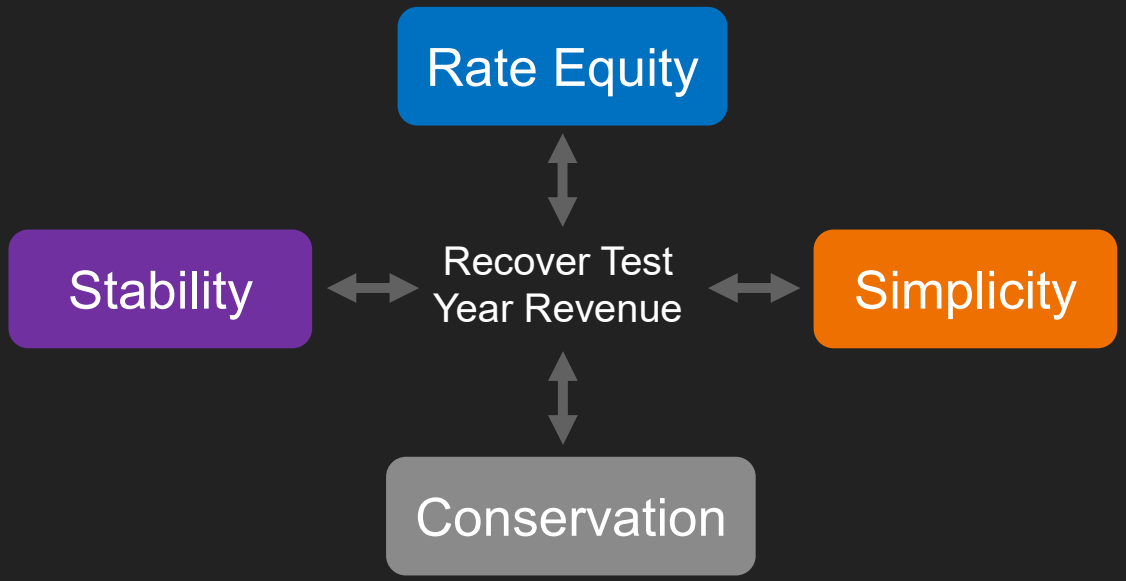


Rate Design

- Evaluate Objectives
- Identify Structures
- Set Parameters
- Customer Impacts

Every 3 to 5 Years

Objectives of Rate Design



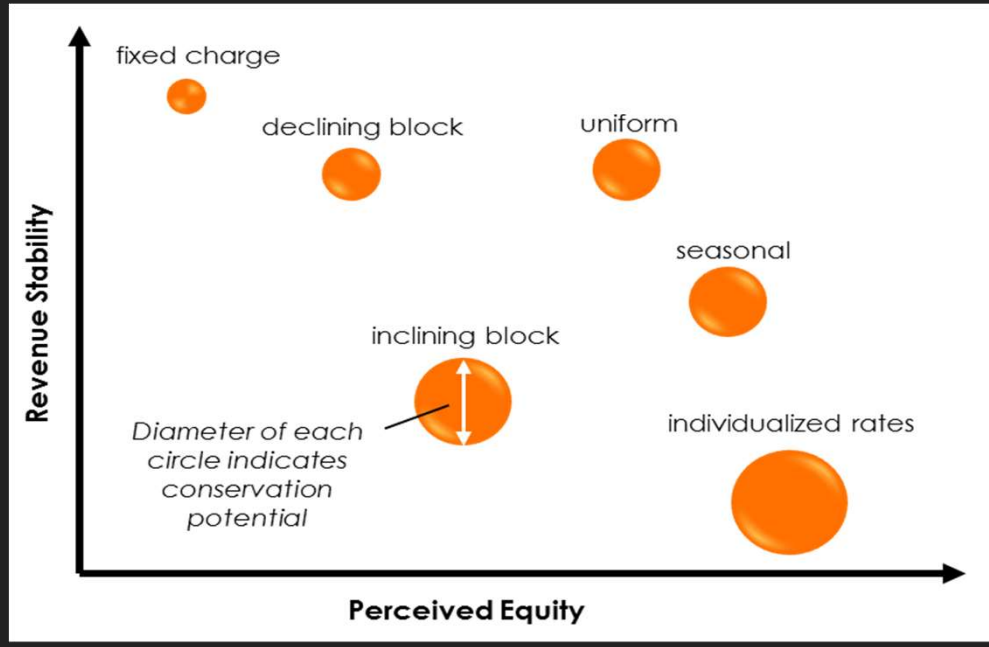
Key Objective: **A sustainable rate structure**

Goal: Design rates that fairly recover revenue across and within customer classes, meet utility objectives, and comply with requirements of Prop 218

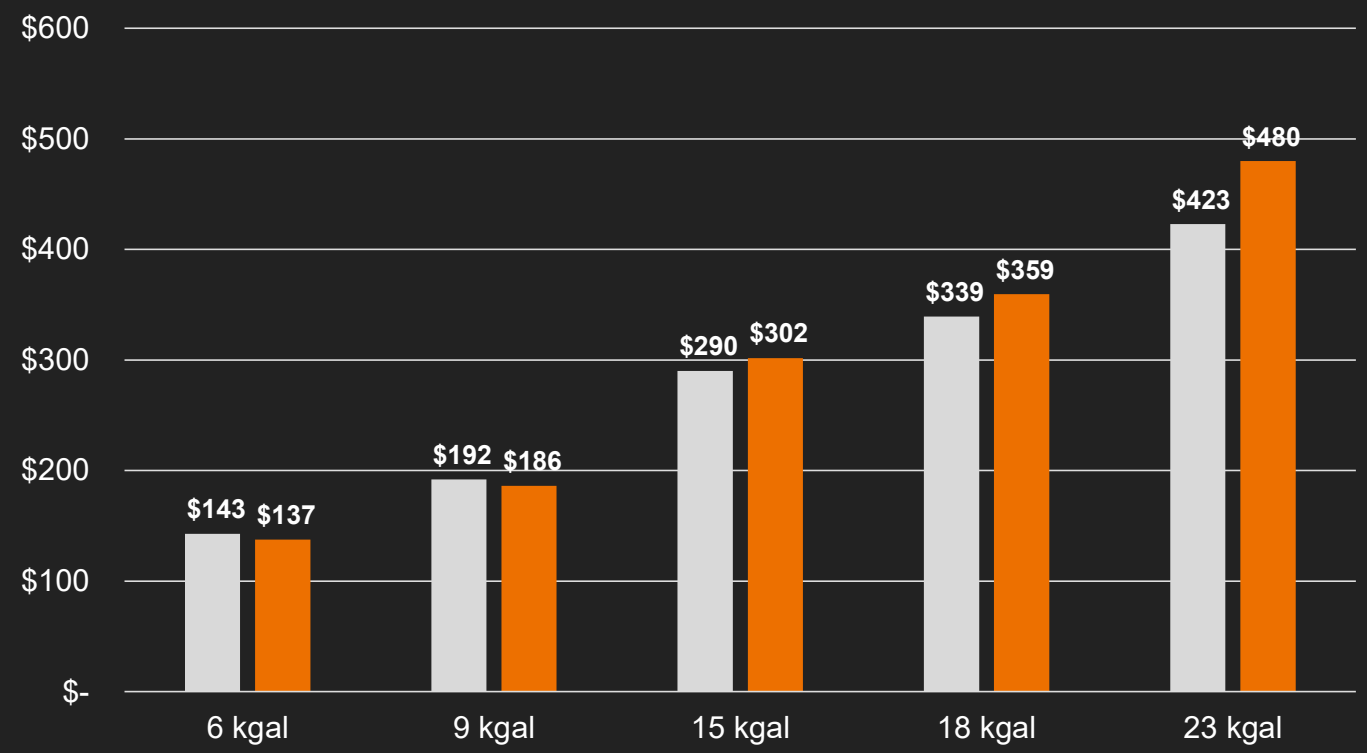
Considerations in Selecting Rate Design

- ✓ **Identify structure that meets your needs:**
  - Conforms to industry practice
  - Meets all legal requirements
  - Easy to administer/understand
  - Elasticity of demand & weather
  - Conservation and affordability
  - Stakeholder input/concerns

- ✓ **Critical considerations:**
  - Understanding the drivers and distribution of system costs
  - Integrating financial considerations
    - Reserve policies & revenue stability

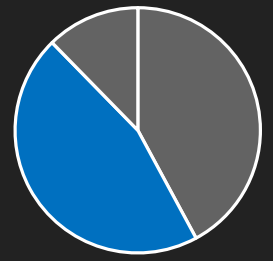


Understanding & Communicating Bill Impacts



% of 3/4" Bills	19%	19%	35%	11%	9%	7%

Current Alternative



46%
of Single-Family Customers have ¾" Meters

Next Steps

General Sequence of Events

1. PUD releases Cost of Service Study
2. Stantec to meet with PUD and Raftelis
3. Stantec to meet with IROC to review study and discuss findings & recommendations
4. Stantec to present report of findings to Council
5. Rate proposals to Council for vote to issue Prop 218 notification
6. Public hearing, count protest votes, Council vote for adoption of proposed rates if no majority protest